

## SYMPOSIUM SCHEDULE

8:45 a.m.

TIEDJE:

Good morning, ladies and gentlemen, I'm John Tiedje, manager of the research facilities here in Sarnia. Welcome to Imperial's Research & Development Symposium. What we would like to do first is show you a bird's-eye-view of Imperial's research over the past half century while you settle yourselves for the main presentations to come.

3-MINUTE OPENER ENDS

8:55 a.m.

TIEDJE:

Thank you. Now, I would like to introduce your host for today, Jim Livingstone, President of Imperial Oil Limited.

LIVINGSTONE PRESENTATION - "IMPERIAL RESEARCH"  
(LIVINGSTONE SPEAKS).

I invite you to join me for a cup of coffee outside the doors to your right. Let's return to our seats in 15 minutes.

COFFEE BREAK

(AFTER COFFEE)

9:45 a.m. Ladies and gentlemen, I'd like now to call on John Tiedje to introduce the next portion of today's program. John is manager of the Sarnia research department of Imperial. He came to this company 35 years ago on his graduation from the University of British Columbia with a master's degree in chemical engineering. He has been in research throughout his career, all of it with Imperial in Sarnia except for two years as director of research for Esso France in Rouen from 1971 to 1973. At last count, there were 24 patents registered in his name. John Tiedje.

(TIEDJE SPEAKS: ASKS FOR QUESTIONS)



10:00 a.m. The first speaker this morning is Leonard Carey. Leonard is a PhD in chemistry from the University of Western Ontario with nine years' experience in research. Currently, he heads our engine oil research group at Sarnia. Leonard will explain how chemical additives put performance into our products.

(CAREY SPEAKS. ASKS FOR QUESTIONS)

10:25 a.m. TIEDJE:

Thank you, Len.

Our next speaker is Tony White, who holds a PhD in organic chemistry from the University of East Anglia, with 11 years' experience in industrial research. He supervises a laboratory group studying the impact of processing and composition on lubricant quality. Tony will show the importance of hydrocarbon selection in providing the performance the customer expects.

(WHITE SPEAKS. ASKS FOR QUESTIONS)

10:50 a.m. TIEDJE:

Thank you, Tony.

Our next speaker, Dave Shaw, will tell you of our activities in developing processes for the manufacture of lubricating oils.

Dave Shaw, is a PhD chemist from the Manchester Institute of Science and Technology. He has 12 years' experience in lube processing research and has recently been appointed manager of this division in Sarnia.

(SHAW SPEAKS AND ASKS FOR QUESTIONS)

TIEDJE: P.C., M.P. Mr. Cullen has been the member of Parliament for Sarnia ever since 1968 with the exception of 1979, when

11:15 a.m. Thank you, Dave. in power. [To Cullen] Bud, this is the first time you have visited our installations in Sarnia, I believe, and

Not all crude oils are alike. Heavy crudes are poor in quality and must be upgraded before they can be processed in a conventional refinery or even transported by pipeline. Chris Kempling will tell you about our research in this area. Chris is head of the heavy-crude upgrading research at Sarnia. He is a PhD chemical engineer from the University of Western Ontario and has nine years' experience in process research.

(KEMPLING SPEAKS AND ASKS FOR QUESTIONS)



11:40 a.m. TIEDJE:

Thank you, Chris.

Now I would like to call on Jim Livingstone to introduce our special guest for the dedication of this addition to the Sarnia research laboratories.

LIVINGSTONE: luncheon, followed by a tour of the labs. I regret

Ladies and gentlemen, it gives me great pleasure to introduce the member who represents this riding in Ottawa, the Honorable Bud Cullen, P.C., M.P. Mr. Cullen has been the member of Parliament for Sarnia ever since 1968 with the exception of 1979, when another party was in power. [To Cullen] Bud, this is the first time you have visited our installations in Sarnia, I believe, and therefore it is both an honor and a pleasure to have you with us on this important day. Ladies and gentlemen, the Honorable Bud Cullen, P.C., M.P.

(CULLEN SPEAKS, CUTS RIBBON OR PULLS STRING)

12:10 p.m.

LIVINGSTONE:

Now, ladies and gentlemen, I would like to ask those of you in the yellow-and-orange chairs at the front to come forward and follow the guides out of the door to the right rear of the stage for a short tour of some of our facilities, followed by a buffet luncheon. And will those of you in the red chairs at the back please go directly out the back door to the room on your right for a buffet luncheon, followed by a tour of the labs. I regret that we had to split the group in this way, but it was necessary in order to meet the demands of our timetable.

AFTER LUNCH: (AS, ASKS FOR QUESTIONS)

1:30 p.m.

LIVINGSTONE:

Ladies and gentlemen, you have seen our Sarnia research facilities both old and new and it gives me particular pleasure to be able to announce formally at this symposium today that we are planning a new centre for process and automotive research here at Sarnia. With its equipment, this facility will cost about \$25 million and, if all goes well, will be in operation in two years.



Now I would like to call on Vern Larson to introduce the Calgary portion of our program today. Like John Tiedje, Vern came to Imperial on his graduation. Vern has an M.Sc. in electrical engineering from the University of Alberta and he has been with our company for 28 years. All of that time has been spent in research and engineering, except for two years as vice-president of Esso Minerals Canada in charge of their coal division. He is manager of the research department of Esso Resources Canada Limited, a wholly owned subsidiary of Imperial Oil. Vern is the inventor of a drill-hole-volume computer that has saved himself and many production engineers countless hours figuring the amount of cement needed to cement casing in wells. Vern Larson.

(LARSON SPEAKS, ASKS FOR QUESTIONS)

1:40 p.m.

LARSON:

(VISUAL TOUR)

Roger Butler will now describe some of the technology we are working on to develop energy from the heavy oil buried at Cold Lake. Roger is manager of our heavy oil research division with a background that includes 25 years' experience in petroleum and petrochemical research. He presently holds 22 patents and there's at least one more in his near future -- which he'll tell you about.

(BUTLER SPEAKS. DISCUSSION ENDS)

(ROSENEGGER SPEAKS, ASKS FOR QUESTIONS)

2:25 p.m.

LARSON:

3:15 p.m.

LARSON:

Thank you, Roger.

Thank you, Lothar. Now let's break for 15 minutes for coffee.

3:30 p.m.

Exploring for oil is difficult at the best of times. When the area you're exploring is under hundreds of metres of water, or in the ice-covered seas of the Arctic, it's that much more difficult. Andy Strilchuk is going to share some of our research into ways to explore under such conditions. Andy has a PhD in physics from the University of Saskatchewan and heads our frontier technology section in Calgary. He has six years' experience in ice research and offshore production technology.

(STRILCHUK SPEAKS, ASKS FOR QUESTIONS)

2:50 p.m.

Thank you, Andy.

Our next speaker is Lothar Rosenegger, who has a master's in mechanical engineering from McGill. Lothar heads the reservoir engineering group in Calgary and has seven years' experience in production research and reservoir fluid mechanics. He's going to tell us about his work on the use of carbon dioxide in recovering additional oil from declining fields.



(ROSENEGGER SPEAKS, ASKS FOR QUESTIONS)

3:15 p.m.

LARSON:

Thank you, Lothar. Now let's break for 15 minutes for coffee.

3:30 p.m.

TIEDJE:

Our final speaker today brings us back to Sarnia and takes us to the original source of all energy on earth -- the sun. John Bichard has a BSc from the University of London and has 26 years' experience in research. He is a senior research associate at the Sarnia laboratories, where he heads our research on solar energy.

(BICHARD SPEAKS, ASKS FOR QUESTIONS)

4:00 p.m.

LIVINGSTONE:

Thank you, John, Vern and all the speakers.

Ladies and gentlemen, that concludes our part of today's symposium, but it doesn't bring it to an end. I am sure that many of you have questions about what we do and the way we do it. My colleagues and I will answer them as best we can and, if you will use one of the microphones, I think we will all be able to hear your questions a little more clearly. Incidentally, we have been recording the discussion periods and we will send texts of the questions and answers to you later, accompanied by copies of the most relevant slides you have seen today.

(DISCUSSION ENDS)

4:30 p.m.

LIVINGSTONE:

My friends, this has been an exciting and satisfying occasion for my colleagues and for me. I want to say again how pleased we are that you came and participated with us. Thank you for coming, and have a safe journey home. The buses are waiting outside to take you to the airport.